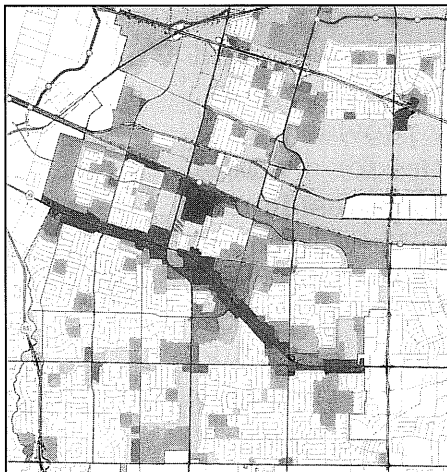

CHAPTER 3 - ISSUES

Chapter 3 focuses on the key policy issues raised in Chapter 2, and is divided into two major sections: “Land Use Issues” and “Transportation Issues.” Although grouped according to their main emphasis, all issues discussed here affect both land use and transportation.

The issues discussed in this chapter, along with the community conditions described in Chapter 2, are developed into the Major Facts, Findings, and Assumptions, as well as the Community Conditions Indicators found in Chapter 4.

Each analysis considers the overarching goals of community character, appropriate housing, efficient transportation, and a strong economy. The alternative approaches and recommendations for



balancing these issues with the City’s fundamental goals, in order to meet Sunnyvale’s future challenges and aspirations, are the foundation for the formulation of the goals, policies, and action statements in Chapter 5.

LAND USE ISSUES

A community's character is influenced and defined by a number of factors, including its transportation systems and its use of land. When asked to define a city's attributes, most people respond to issues relative to the way it looks, how it functions, and how that makes them feel about their city. This section focuses on land, neighborhood integrity, and the relationship between the economy and land use policies.

Neighborhood Integrity

Sunnyvale is a fabric woven together by its neighborhoods. Thus, neighborhood integrity is the heart of community character. Sunnyvale has a variety of residential and industrial zones that have evolved into special, identifiable areas. Maintaining and enhancing these residential and industrial neighborhoods is a vital part of the vision described in this General Plan update. Issues that affect neighborhood integrity include the proximity of residential and nonresidential uses, the use of the Planned Development Combining District, minimum residential density policies, high density residential land uses, and the introduction of nonindustrial uses into industrial neighborhoods.

Proximity of Residential and Nonresidential Uses

Sunnyvale land use policies and zoning practices encourage locating related although possibly dissimilar uses within each zoning district. The General Plan and Zoning Code provide considerable flexibility over the location of nontraditional and diverse land uses through the discretionary permitting processes. For example, a 1984 Land Use Sub-Element policy provided for a full range of residential densities to offer opportunities for a mix of dwelling and tenure type. The General Plan also allows residential uses in the Central Business, General Business, Neighborhood Business, Office, and Industrial areas.

In a residential zoning district, the City allows religious uses, child care centers, and certain recreational uses subject to review at a public hearing and approval of a use permit. Often these uses are compatible with and supportive of the residential district, provided there is appropriate site planning and certain conditions are met.

The proximity of residential to nonresidential uses is primarily the result of the development of residential uses abutting long-standing commercial uses throughout the City, and the introduction or replacement of nonresidential uses adjacent to residential neighborhoods. Also, during the transition of the Futures Industrial to Residential (ITR) sites, new residential uses have been established near industrial uses.

The most common impacts to residential uses result from proximity to commercial and industrial sites. When residential uses are adjacent to nonresidential uses, normal commercial and industrial activities can be a nuisance. These nuisances include operational noise, light and glare, conflicting hours of operation from late night establishments, and intermittent noise, such as that generated by loud speakers used at auto dealers.

The noise regulations were amended in 1995 to address some of these issues and to further minimize the impact of existing commercial and industrial uses on adjacent residences. In addition to defining different types of noises and noise levels, the revision clarifies daytime and nighttime hours and restricts certain activities like deliveries and landscape maintenance to daytime hours (7am-10pm). The provisions also set forth the language and criteria for determining intermittent noise nuisances.

Study of adjacent residential and nonresidential uses indicates that some conflicts are age related, since many commercial uses were established prior to adoption of review and permitting processes. One area of friction is along El Camino Real. Residential uses back up to commercial uses all along the 3.8 mile length of El Camino Real through Sunnyvale. Some uses conflict with the residential uses located adjacent to them, but have been important to the City's economic health.

Except where uses pre-date the City's codes, adjacent dissimilar land uses have typically been reviewed on a case-by-case basis. However, even with required operating and design standards for maximum noise levels, sound walls, and landscape buffer areas, conflicts do occasionally occur. The City seeks to balance the impact on its residential neighborhoods with the need to provide reasonable operating conditions for the business community now and in the future.

Sunnyvale is a community of varied and changing land uses, which is responding to local and regional economic influences on land use and transportation resources. These issues directly link to the City's overarching goals of community character, appropriate housing, efficient transportation, and a strong economy.

Planned Development Combining District

Many communities utilize zoning overlays or "combining districts" with base zoning as part of project review and development, in order to provide some additional level of review and flexibility during the review process. Sunnyvale adopted the Planned Development (PD) Combining District as a separate zoning category in 1966. Within the last 15 years, the PD Combining District has been used extensively in Sunnyvale, and a total of 13% of Sunnyvale's net land area is zoned with the PD Combining District. This zoning tool is discussed in this section since it pertains to how new development is integrated into Sunnyvale's established residential neighborhoods.

The PD Combining District can be added to any of the zoning districts through enactment of an ordinance. A summary table illustrating the use of the PD Combining District by zone and acreage is located in Figure 3.1. (Refer to Appendix A for a description of the different zoning districts.)

Figure 3.1: Sunnyvale Acreage by Zones, PD vs Non-PD

Zoning	Non-PD Acreage	PD Acreage	Percent of PD Acreage
R1	930.57	2.25	0%
R0	2,239.40	36.69	2%
R1.5	0.00	24.96	100%
R1.7	0.00	11.90	100%
R2	217.49	197.98	48%
R3	409.36	399.73	49%
R4	105.95	186.82	64%
R5	0.00	1.83	100%
RMH	444.54	0.00	0%
CD	16.02	0.00	0%
C1	39.08	80.00	67%
C2	74.54	206.78	74%
C3	0.00	3.33	100%
C4	12.70	1.31	9%
MS	1,445.69	84.16	6%
M3	1,888.30	57.43	3%
O	20.22	19.74	49%
PF	2,245.42	0.00	0%
TOTAL	10,089.28	1,314.91	13%

Source: Sunnyvale Planning Division, Automated Land Information System, 1996.

The vast majority of the use and acreage of the PD Combining District is within the residential zoning districts. The highest number of acres is the R-3 (medium density residential), followed by R-2 (low/medium density) and R-4 (high density). Within the commercial zones, the C-2 (highway commercial) has the largest number of acres, largely because C-2 is along El Camino Real. The PD Combining District has rarely been added to industrial and manufacturing zones.

In order to build or establish a use in a PD Combining District, a special development permit is required. The special development permit is a discretionary planning permit that augments the underlying zoning district development standards that serve to delineate the scope, density, and scale of development. The intent of the PD Combining District is not to reduce requirements established by the basic underlying district regulations. The City may actually impose more restrictive requirements if deemed appropriate through the special development permit process.

A special development permit may enable deviations of lot area, lot width, setbacks, height, bulk, and parking space requirements, if appropriate. It does not apply to changes in density (i.e. dwelling units per acre). The General Plan and zoning densities, including the base zoning, remain unchanged. Each project is evaluated on its own merits, which provides opportunities for flexibility in site design and architectural treatment. Permitted uses of the combining district can result in some variation in the "built environment" through creative design and site planning. In addition to design flexibility, the City may restrict uses through the use of the PD to be compatible with existing neighborhoods.

For residential and commercial properties, the PD Combining District has been used to address various site constraints or opportunities in the following ways:

- ◆ To provide additional design flexibility to address site design
- ◆ To provide opportunities for a mixture of uses on a site
- ◆ To facilitate redevelopment on all or a portion of a commercial/retail site
- ◆ To provide a better interface between adjacent residential uses and the subject site
- ◆ To require additional review of some uses to protect residential neighborhoods
- ◆ To create a project that is more compatible with the adjacent neighborhood by requiring superior architectural design

Within our community, projects are either redevelopment or infill projects. The utilization of the PD Combining District is one of several methods used to address the challenges of these projects. Infill and redevelopment sites often remain undeveloped or underdeveloped due to their unique characteristics or because of less than desirable market conditions. To address these circumstances, the PD Combining District provides adaptability to address specific circumstances common to infill and redevelopment sites.

Some questions that can be asked regarding the PD Combining District are:

- ◆ Does a superior project result from the use of the PD Combining District?
- ◆ If so, at what cost and benefit?
- ◆ To what degree does the flexibility associated with the PD combining district compromise the intent of the underlying zoning?

The Planned Development Combining District is not a panacea. The use of the PD Combining District follows planning and design principles. Objective measurement of the effectiveness and utility of the district is difficult. Every project is unique and the use of the combining district has produced mixed results. However, maintaining this flexibility is one of the ways to address design and site challenges.

While the PD Combining District has been often used as a planning technique, significant changes or more stringent criteria could reduce its current flexibility in addressing unique sites. The use of the PD Combining District is intended to be consistent with both the General Plan and the City-wide Design Guidelines, and to help achieve goals of appropriate housing within the City.

Minimum Residential Density Policies

An examination of the density and design of infill residential often raises issues of neighborhood character and compatibility. The following summarizes City policy at the time of this update:

- ♦ Expansion of housing opportunities should occur throughout the City and be compatible with existing, surrounding neighborhoods.
- ♦ Innovative types of housing in existing residential zoning districts is encouraged.
- ♦ All new developments shall be built to at least 75% of permitted densities.

Background: Since the adoption of the minimum 75% residential density requirement in 1984, residential developments have largely conformed to this standard. Between 1991 and 1994, the average residential density was 79% of permitted density according to a sample of project data. In addition, the affordable housing density bonus has resulted in additional housing units.

The desirability of increasing the number of dwelling units per acre is influenced by land prices and market demand. The 1995/1996 market favored construction of single-family detached units, whereas the 1989/1990 market favored condominiums and apartments. The market is defined by changing community needs and economic factors. In largely built-out communities such as Sunnyvale, there are fewer opportunities to significantly modify the intensity of development. Establishing a minimum residential density is a local policy.

There are many possibilities for residential infill and redevelopment. Within the last eight years, most residential projects have been redevelopment of residential and industrial sites. Of all vacant parcels in Sunnyvale, approximately 22% (or 63 acres) are residentially zoned. These include the 17-acre 101/Lawrence site (currently under construction), the 18.8 acre "Corn Palace" site (on Lily Avenue adjacent to Lawrence Expressway), with the remaining sites of less than 2 acres each.

Several concerns have been raised regarding the current minimum residential density policies of the General Plan. The current policies support a variety of housing types to meet local, regional, and state housing goals. Over time, market demands for housing and opinions regarding desirable residential development densities have shifted. This discussion examines current community conditions, infill and redevelopment opportunities, and policy implications associated with maintaining or modifying the General Plan.

With fewer vacant sites and increased redevelopment activity, infill residential and commercial developments have become more challenging. These projects raise compatibility questions for adjacent residents and businesses. These challenges have often been addressed through the use of the Planned Development Combining District.

The Use of the Planned Development Combining District: The Planned Development (PD) Combining District has been a means of addressing the 75% residential density requirement. The Combining District maintains densities but provides flexibility in meeting the development standards (e.g., setbacks, height, building separation) of the zones. PD Combining District projects address specific site constraints (e.g., lot size, configuration, easements, and trees), promote compatible design solutions with existing development, and provide opportunities for mixed use developments.

Policy Implications of Changing the 75% Minimum Density Policy: Considering a building's lifespan, policy choices have a long-term impact on the structure and diversity of housing, the ratio of jobs to housing, employment, transportation, and community character. The original intent of the 75% minimum density requirement was to maximize housing opportunities within the residential zoning districts.

The current minimum density standard reinforces the linkage between the General Plan and zoning districts, since the 75% figure generally falls within the lower limits of the prescribed density ranges.

The housing intensity has a long-term impact on the structure, price, and diversity of housing within a community. The density policy, therefore, relates to the jobs/housing ratio of a community. These policies also are forces shaping overall community character.

High Density Residential Land Uses

Concerns have been expressed regarding the suitability of high density development, specifically as it relates to infill sites in existing neighborhoods. High density development can pose significant design and compatibility challenges. This section is a review of the R-4 and R-5 zoning districts, focusing on their utility and compatibility with surrounding neighborhoods. Existing policies on density, land use, and housing are also evaluated.

Background: The R-4 and R-5 Zoning Districts are the high density zoning districts in the City. They provide for residential development at densities of 28 to 45 dwelling units per acre (R-4) and 45 to 55 units per acre (R-5). These densities relate to the High and Very High Density Residential designations and are the maximum permitted by the General Plan. They include the 15% density bonus available for providing the required Below Market Rate (BMR) units. The General Plan has promoted the maintenance of a diversity in tenure, type, size, location, and cost-of-housing to permit a range of individual choice for all current residents and those expected to become City residents as a result of normal growth processes and employment opportunities.

Higher density housing is typically found along major roadways and near public transit. The General Plan Land Use and Transportation Map shows the location of the High and Very High Density Residential land use designations. This approach to land use:

- ◆ Protects lower density residential development from larger amounts of traffic
- ◆ Provides apartment dwellers, who are more transit dependent, with better access to public transit
- ◆ Provides enhanced site planning opportunities to protect outdoor areas from the impacts of transportation-related noise

The R-4 zoning district was part of the 1950 Zoning Code for Sunnyvale, but applied to only one block of the 6.1 square mile City (bounded by Mathilda, Olive, Taaffe, and El Camino Real). In 1960, the City was 14.1 square miles. The R-4 zoning was later applied to other properties, including those annexed between 1950 and 1963. Several properties were rezoned to R-4 when the comprehensive zoning map was adopted in 1965. Despite the earlier zoning designations, most of the R-4 sites developed at their permitted density in the 1970s and early 1980s. Since 1972, 14 properties have been rezoned for high density residential development, including implementation of part of the Southern Pacific Corridor Site Specific Plan, three Futures properties, one downtown site, and two sites that provided for minor expansion of an adjacent R-4 development. In 1978 the City adopted the Central Sunnyvale Policy Plan that resulted in a large amount of property being rezoned from R-4 to R-2 or R-0 to protect low density single-family homes in the vicinity. Since 1990 about 860 units have been built or are nearing completion on R-4 land.

The Southern Pacific Corridor Site Specific Plan at Evelyn and Sunnyvale Avenue was amended in November 1994 to permit a mixture of uses including office, retail in conjunction with residential, or residential development at an R-4 density (36 dwelling units per acre before density bonuses), which is comparable to the Downtown Specific Plan density in the immediate vicinity.

The R-5 zoning district existed when the 1963 Uniform Zoning code was adopted at a density similar to R-4. The density was changed to one unit per 950 square feet (45 units per acre) in 1982. Single room occupancy facilities (SROs) are the only major addition to uses in this zone. There are two Specific Plans, 101/Lawrence and Downtown Specific Plan, that permit residential development at an R-5 density.

Figure 3.2 provides information on the High Density and Very High Density Residential General Plan designations.

Figure 3.2: High and Very High Density Residential Land Uses

Zoning	Acres	Percent of City-wide residentially zoned property	Units (existing, approved, or permitted by Specific Plan)	Percent of build out (61,361 dwelling units)
All Residential	5180	100%	51,911	85%
High Density	295	5.7%	7,567	12%
Very High Density	41	0.8%	2,013	3%
TOTAL (High and Very High)	336	6.5%	9,580	15%

Source: Planning Division, Automated Land Information System, 1996.

The General Plan was amended in 1989 to create the Very High Density residential land use category (45 to 65 dwelling units per acre). This category is supported by both the 101/Lawrence Special Plan and the R-5 zoning. Today only one site is zoned R-5: the 1.59 acre R-5 property at Weddell and Borregas has been approved for a 193 unit Single Room Occupancy (SRO) facility.

Patterns of Development: Among the R-4 sites, 17.4 acres (6%) have been developed with nonresidential uses, such as offices (particularly medical offices), that are not likely to redevelop in the near-term. Some of these parcels include commercial uses. A large number of the R-4 properties (about 120 parcels) are under 6,500 square feet (currently the minimum size for more than one unit), are developed with 1 to 3 dwelling units, and do not meet the minimum lot requirements without additional assembly of lots. Additional redevelopment and development opportunities do remain in these zones, but there are only a few properties that may result in a discernible increase in the number of housing units.

Policy Implications of Modifying R-4 and R-5: The R-4 and R-5 zoning districts support the General Plan categories of High Density Residential (28 to 45 dwelling units per acre) and Very High Density Residential (46 to 55 dwelling units per acre). A concern is that development at these higher densities will negatively impact neighborhoods and substantively change the character of the community.

The R-4 and R-5 zoning districts (in conjunction with other housing programs such as the 75% minimum density, the requirement to provide Below Market Rate housing, and the housing mitigation policy for higher intensity industrial developments) have contributed toward the State of California certification of Sunnyvale's Housing and Community Revitalization Sub-Element. Some community members believe that Sunnyvale has satisfied the full range of housing opportunities and that further use of the R-4 and R-5 zoning categories may not be warranted.

Housing remains a key component of community character and relates to other goals as well, including efficient transportation and a strong economy. A variety of housing types and intensities provides a mixture of housing choices to serve the community. The design and implementation of new or redevelopment projects should emphasize compatibility with the surrounding neighborhoods in order to promote elements of balance and design compatibility.

Nonindustrial Uses in Industrial Neighborhoods

The City's zoning allows some land uses that are considered more restrictive (sensitive) to be located in less restrictive, industrially-zoned districts. An example is when residential development or religious facilities are allowed to locate within an industrial zoning district.

The juxtaposition of dissimilar land uses can result in conflicts, although the uses may be consistent with General Plan policies and potential impacts are mitigated through restrictions on operating standards. Under current zoning regulations, the City tries to create or maintain a balance between the needs of residents and a healthy, diversified economy. As a result, Sunnyvale has experienced some conflicts from the introduction of nontraditional uses into industrial zones.

Approximately 25% of the City's land area is zoned for industry. The City has two industrial zoning districts: M-S (Industrial Service) and M-3 (Heavy Industrial). Both allow a wide range of manufacturing, office, and warehouse uses as a matter of right, and a broad range of nonindustrial uses with approval of a discretionary permit.

Over the last 20 to 30 years, there has been a gradual increase in non-traditional uses within these industrial and manufacturing districts. Uses such as restaurants, hotels, banks, child care, and retail have located in these areas in support of the industrial uses. Religious, cultural, and educational institutions have typically had no direct connection to the industrial population, but sought the low cost land and affordable leases that were available in Sunnyvale's industrial areas during the early 1990s.

The City has employed use permit and design permit processes to review the appropriateness of these nontraditional uses on a case-by-case basis. From an operational standpoint, these uses typically have peak operating periods that do not conflict with adjacent industrial and manufacturing uses, and can provide convenient support services to industry.

The overall effect of nontraditional uses on the City's industrial businesses to operate unencumbered by this encroachment is an issue. Nontraditional uses can undermine the basic purpose of these industrial districts by creating an environment that becomes overly sensitive to the continued use of fundamental industrial

processes, including the use of hazardous materials. The location of child care and religious institutions, in particular, has become controversial due to potential risks associated with locating sensitive populations near such materials and processes.

If the City wants to maintain its status as a desirable location for industry, legitimate concerns need to be resolved regarding the location of non-traditional uses in industrial areas. Among the concerns that have been raised are:

- ♦ Industry's ability to expand or change the use of hazardous industrial materials that may pose some level of risk to newly introduced sensitive populations (i.e.: child care centers and churches)
- ♦ Regulatory requirements that may be imposed on industry after-the-fact when a nontraditional use is established in the vicinity
- ♦ Limiting the potential to obtain tenants for sites in industrial zones because of liability questions resulting from being located near nontraditional (sensitive) uses
- ♦ Maintaining industrial property values and viability
- ♦ Reducing the ability to obtain insurance or having insurance canceled because of the proximity of nontraditional uses

Child Care in Industrial Areas: At the time this element was written, the Council had taken two actions to address child care issues in industrial areas. In 1992, the Council considered a legislative issue that reviewed planning and zoning policies to identify approaches to streamline or facilitate the development of child care facilities. As a result, several changes were made to the Zoning Code making it easier to locate child care centers by allowing smaller facilities (up to 30 children) by right in the C-1 (neighborhood commercial) and P-F (Public Facility) zoning districts, and thereby providing opportunities for siting in areas other than primarily the industrial areas.

In 1994, a study focused on the siting of child care facilities in industrial areas. As a result, the City recognized the potential effects of child care near industry, but chose to continue to review child care proposals on a case-by-case

basis. Several concerns were addressed, such as additional noticing of surrounding property owners, disclosure requirements to parents, increased on-site safety measures, and distance separation requirements from hazardous materials.

Addressing Alternative Uses in Industrial Areas: Nonindustrial supporting services, such as restaurants, hotels, health clubs, banks, and retail uses are typically allowed in industrial areas subject to a public hearing and permit approval. These uses have been less controversial when nontraditional and industrial support uses are located on the periphery of industrial zones, particularly along arterial street corridors.

In 1993, the City adopted the Futures Study, a major land use plan that uses the principles of inclusionary zoning to allow housing within industrial areas. The study executed policies affecting the housing supply. The purpose was to select appropriate sites for additional housing opportunities and to locate employees near jobs in an effort to reduce traffic congestion area-wide. The Futures Sites were selected for future conversion to low-medium and medium density residential uses.

The Futures Sites have already been studied and planned for transition to residential. An approach to providing alternative locations for other nontraditional uses would be to specifically consider the use of these Futures Sites. As a way of minimizing the impact of these uses on the City's important industrial base, nontraditional development such as retail, religious institutions, cultural centers, and/or child care could be specifically encouraged to locate at Futures Sites.

Since the Futures Study was adopted in 1993 and until 1997, there has not been any new residential development on a Futures Site. This has primarily been a result of not having sufficient land area aggregated under one ownership to support residential development. A policy to expand the use of Futures Sites could have the following implications:

- ♦ Transition/redevelopment of these areas may be accelerated.
- ♦ The City may not gain as many housing units as originally planned to support its industrial employment base.
- ♦ The impact of nontraditional uses encroaching into the core of the industrial areas may be reduced or confined.
- ♦ More industrial areas may be unencumbered by nontraditional uses and be able to continue with fundamental research and manufacturing processes without liability issues associated with adjacent sensitive and dissimilar uses.

Policy Considerations for Industrial Areas: The 1984 Land Use Sub-Element called for the provision of a variety of industrial uses and supporting commercial uses. Due to the presence of hazardous materials and processes in industrial uses, the encroachment of nontraditional uses into industrial areas has become an issue. Some businesses have suggested that these uses pose liability issues that erode the basic ability of industrial businesses to operate. These competing needs and land uses are a challenge for the City to address. With guidance from the General Plan and the utilization of the public hearing process for some discretionary permits, many potential issues are addressed through the conditions of approval.

The introduction of nontraditional uses into manufacturing and industrial areas has increased environmental review, including the preparation of environmental impact reports to fully ascertain the environmental impacts of new or nontraditional land uses. While these approaches add to the environmental review process, they may also serve as a deterrent to nontraditional uses in these designated areas.

The introduction of nontraditional uses into manufacturing and industrial areas is one of many examples of changes and modifications to land uses over time. Many of these examples reflect changes in the social needs of the community, such as the location of child care in close proximity to industrial/manufacturing employment sites. This evolution of land usage reflects a combination of changing social and economic conditions that comprise community character.

The next section introduces many issues linking land use policies and practices with the local and regional economic cycles. A more vigorous economy places increased demand on land resources and uses. Intensification of land uses often produces more jobs and an increased demand for housing. To varying degrees, the combination of jobs and housing also introduces additional traffic in the transportation corridors.

The Economy and Land Use Policies

The state of a regional economy can affect land use, and land use can affect the state of a local economy. Sunnyvale has certainly felt these relationships. The growth of Silicon Valley and its various economic cycles have greatly influenced the character of Sunnyvale over the last 50 years. In this section, several relationships between the economy and land use are explored. The issues of jobs and housing and development standards in industrial zoning districts are discussed on the following pages.

Jobs and Housing

The distances separating jobs from housing in the Bay Area contributes to worsening traffic conditions on regional streets, longer commute times, and air pollution. The City of Sunnyvale has had a long standing policy to provide both housing opportunities and a solid employment base. The 1957 General Plan noted the importance of providing employment for the workers who would live in Sunnyvale. The industrial sector took hold in the 1950s, and employment skyrocketed. In the 1980s the focus

shifted toward assuring that housing was available for the people who worked in Sunnyvale.

The concept of seeking to balance expanding employment centers and residential growth is a regional issue, but it is addressed by local policy makers. Varied land uses in a city contribute to the long-term economic health of the community. The relative measure of the jobs-to-housing ratio is an indicator of land use and housing policies, economic development strategies, and transportation plans. All of these factors affect the quality and character of the community.

The Association of Bay Area Governments (ABAG) developed the goal of a jobs/housing ratio of 1.6 (considered balanced based on the assumption of more than one worker per household). ABAG prepares estimates of existing and future jobs/housing ratios for each community in the Bay Area. Comparisons of the ratios are often inconclusive due to fluctuations in housing and jobs. The number of jobs is particularly sensitive to the economy. Under recessionary conditions the jobs/housing balance is closer than during periods of recovery or strength. Job mobility is another critical factor that is not fully captured in the jobs/housing ratio.

Data suggests that the City of Sunnyvale has a better ratio than other communities. Due to zoning and the history of residential development, the City has developed a significant share of regional housing that consists of a higher proportion of multifamily units than most communities and a commitment to the permanency of mobile home communities. In order to support a variety of industrial land uses and jobs, the business community has advocated a range of housing options and prices. The availability of housing enhances economic growth, supports businesses, reduces commuting distances, and gives employees some opportunities to both work and live in a community.

Jobs: One factor in the ratio is jobs. In largely built-out communities, fluctuations in the number of jobs have a more immediate impact on the ratio than changes in the number of dwelling units. Sunnyvale has greater potential growth in jobs than in the development of residential dwelling units.

Housing: Housing is the second half of the ratio. Over the past decade, various types of housing units have been developed, including a significant number of single-family detached units in response to strong market demand. Sunnyvale has pursued several policies to encourage new housing developments. Small lot/small home sites have been developed in Sunnyvale since 1968. From 1984 to 1994, about 7,400 residential units of varying types were built. Of the total housing units approximately 53% are single-family detached, including mobile homes, and 45% are multifamily housing units. At the time of this General Plan update, there are opportunities for residential development of about 10,000 units.

Within the next decade and beyond, housing will be infill and the redevelopment of deteriorated or underdeveloped properties, including the Futures Sites. Sunnyvale's policies require that infill developments should be attractive and compatible with existing neighborhoods, demonstrate sound urban design principles, and promote site amenities (e.g., special design features and enhanced landscaping). According to 1996 ABAG estimates the number of Sunnyvale households is expected to increase by 21% between 1990 and 2015. This amount of growth can only be achieved with the current land use designations. However, to attain the ABAG goal of a 1.6 jobs/housing ratio, Sunnyvale would need to add almost 45,000 housing units for a total of 95,000 units.

Proximity: The City has used several techniques to encourage the close proximity of jobs to available housing:

- ◆ Limiting the employment concentration and intensity of industrial development (through jobs/acre in 1980, and later by using a 35% floor area ratio [FAR])
- ◆ Expanding the housing supply by rezoning properties from industrial to residential
- ◆ Requiring a 75% minimum housing density
- ◆ Offering density bonuses for providing affordable housing units

- ◆ Establishing a housing mitigation policy associated with development that exceeds the 35% FAR in industrial and manufacturing zones

These policies were designed to provide housing options while maintaining opportunities for the business sector. The Futures Study (1993) examined the reallocation and location of the intensity of jobs and housing. An outcome of the Futures Study was to rezone certain industrial properties for transition to residential uses, and to increase the allowable FARs in four areas of the City in order to target the location of jobs within the community.

Alternatives and Policy Implications: Since any jobs/housing calculation fluctuates over time and with economic cycles, the City has various approaches to the concept of balance including: putting emphasis on jobs over housing, emphasizing housing over jobs, or treating jobs and housing equally. Each of these approaches has policy and service implications for the City.

Policies regarding the number of jobs can be addressed more directly through a review of development standards (including 35% FAR) in industrial areas. Policies regarding the number of housing units can be addressed through the review of the 75% minimum density policy.

The jobs/housing ratio is an indirect result or relative measure of the development standards in industrial areas and minimum residential density policies discussed earlier in this chapter.

Development Standards in Industrial Zoning Districts

Development standards are part of the zoning regulations for each zoning district. The purpose of development standards is to realize appropriate site planning, which promotes quality building, site design functionality, and uses of land that achieve General Plan policies. Development standards promote good site design, the provision of adequate public facilities, appropriate architectural design, and community compatibility. The enactment of development standards in the zoning code is one method that the City uses to "protect and promote the public health, safety, peace, comfort and general welfare." (SMC 19.02.030)

Development standards form the basis for evaluation and implementation of development. Development standards normally include building height limits, building setbacks from property lines, landscaping requirements, parking requirements, and lot coverage and density limits such as floor area ratios (FARs). Most of the standards assure reasonable amenities on the site (parking and landscaping) and indirectly affect the total amount of development that occurs on the site. The FAR is the most significant development standard affecting the intensity of potential industrial development in Sunnyvale.

Background: Between 1975 to 1995 there were a few modifications to the development standards in industrial zones. None of the changes were the result of significant policy concerns, but instead were refinements to existing standards.

In 1986 to simplify the former standard expressed as jobs per acre of development, the 35% FAR standard was adopted. The FAR standards were part of the City's efforts to adjust the jobs and housing ratio. A FAR compares the square feet of building development with the total land area of a site. It is a crucial element of the City's system of effective land use and transportation planning. The FAR defines the allowable square footage that subsequently affects the number of automobile trips generated.

FARs in Other Communities: A survey of other communities notes a wide range of FARs in manufacturing and industrial zones. Figure 3.3 summarizes FAR standards (or other intensity controls) in other Santa Clara County communities. Sunnyvale's FAR standard is similar to Cupertino, Mountain View, and north San Jose. The FARs in other communities range from 33-75%; the majority are within the 30-40% range. Recently the trend is toward greater FAR allowance.

Figure 3.3: Comparison of FARs by City (1996)

City	Zone	FAR
Cupertino	All Industrial/Mfg.	33%
Palo Alto	GM (General Mfg.)	50%
	LM (Limited Mfg./Research Park)	40%
Mountain View	General Industrial/R&D	35%
	Warehouse	40%
	Increase allowed if within 2,000 ft. of transit	50%
San Jose	All but North San Jose	35%
	North San Jose, if within 2,000 ft. of transit stop	40%
Santa Clara	Planned Industrial District	50% lot coverage
	Light Industrial	75% lot coverage
	Heavy Industrial	Restricted by setback & parking requirements
Sunnyvale*	Service and General Industrial	35%
	Warehouse	50%

*The Futures Industrial intensification sites allow FARs of 50%, 70%, and 100%.

FARs in Sunnyvale: Almost 93% of the industrial parcels in the City have been developed, but not all have been developed to their maximum potential. The resulting FARs range from 0.16% to 143% (note only 6 parcels are greater than 100%). Figure 3.4 shows the characteristics of development and average FARs for Sunnyvale industrial properties.

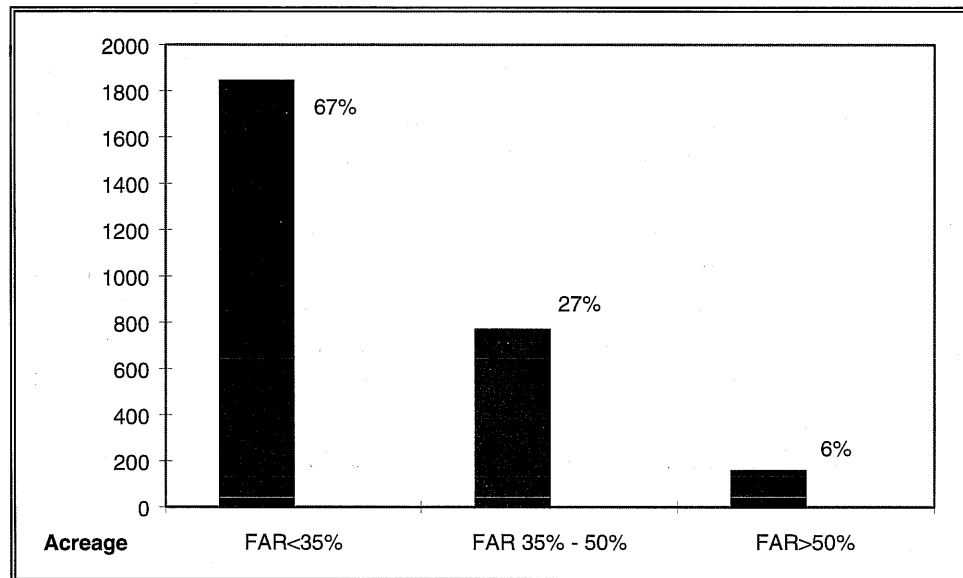
Figure 3.4: Characteristics of Development in Sunnyvale Industrial Zoning Districts (1996)

	Number of Parcels	Total Acres	Average FAR
All parcels	923	2,753	29%
All parcels currently developed with industrial uses*	684	2,268	34%
Parcels with less than 35% FAR	536	1,830	19%
Parcels with less than 35% FAR, currently developed with industrial uses*	347	1,410	24%
Parcels with greater than 35% FAR, currently developed with industrial uses*	337	858	44%
Parcels developed with nonindustrial uses	239	484	N/A

**Certain uses are not considered industrial and do not have FAR limits including: housing, hotels/motels, retail, restaurant, private streets, public utilities (e.g., flood control channels, well sites, etc.)*

Approximately 58% of the parcels zoned M-S (Industrial Service) and M-3 (Heavy Industrial) are developed with less than a 35% FAR. The average FAR for these parcels is 19%; however, discounting parcels developed with uses for which FARs are not controlled, such as restaurant or hotel, the average FAR is 28%.

If all of the industrial parcels now developed at less than 35% FAR were to be developed at the 35% FAR level, a total of approximately 12.8 million additional square feet of building area would be added, resulting in up to 12,500 to 29,000 additional peak hour trips. Sixty-five parcels or 1.3% of the M-S or M-3 zones have 50% or greater FARs. Figure 3.5 is a summary chart of FARs in Sunnyvale.

Figure 3.5: Industrial Development FAR Ranges in Sunnyvale

Source: Planning Division, Automated Land Information System, 1996.

In the 1993 Futures Study, several industrial parcels located throughout the City were rezoned to allow residential development or a mix of residential, commercial, and industrial development. In addition, some of the Futures Study parcels were given higher FARs. The purpose for rezoning some sites and allowing higher FARs on others was to provide more housing within the City and to provide the opportunity for a more varied job-producing sector in areas that could support transit.

In industrial zones, FARs of 35% are permitted for industrial uses and offices, and 50% for warehouses before additional review is required. Applicants can apply to exceed the 35% FAR standard through the use permit process. The use permit is a higher level of review, including the imposition of additional mitigation measures, including housing mitigation fees. If the City was to reconsider its FAR standards, it would be necessary to evaluate the environmental impacts, including the potential traffic impacts of such a policy.

There are land use and transportation policy implications to any changes to the current FAR standards within the City. As noted the City's current FAR standards are at or below that of several neighboring communities. The density of development directly influences traffic generation and needed traffic mitigations, potential job growth, and the demand for housing.

Housing remains a key component of community character and relates to other goals as well, including efficient transportation and a strong economy. A variety of housing choices and intensities provides a mixture of housing to better serve the community. The design and implementation of new or redevelopment projects should emphasize congruity with the surrounding neighborhoods in order to promote elements of balance and design compatibility.

TRANSPORTATION ISSUES

Most people equate the term “transportation” with traffic. Traffic affects each of us on a day-to-day basis. The increasing number of single occupancy vehicles traveling ever greater distances is at the forefront of most of our impressions regarding transportation. However, transportation is a broader subject and includes travel modes, neighborhood traffic, carrying capacity limitations and implications, funding, and overall land use impacts.

Transportation Modes

This section examines a range of issues, such as the mode choices made by Sunnyvale residents and workers, the implications on transportation strategy, transportation systems management or transportation demand management approaches, and bicycle, pedestrian, and transit modes. Current and future demands on the transportation system hinge on the type of transportation options individuals have and the choices they make. The transportation system is a critical determinant of the utilization of land in the City.

As discussed in Chapter 2, most travel within Sunnyvale is made by private automobile. An extensive roadway system has been constructed to accommodate automobile travel. The approximate mode split of both Sunnyvale’s residents and workers in 1990 is:

♦ Drove Alone	80%
♦ Carpooled	15%
♦ Bicycled/Walked	3%
♦ Took Transit	3%

The City has some significant transportation policy decisions to make. Focusing on community transportation conditions as they relate to transportation modes may give a sense of how effective strategies that are focused on a particular mode might be.

Automobile Mode

The street system in Sunnyvale has been almost fully built-out. Therefore, future improvements to the transportation system will have to focus on adding capacity to existing facilities or making operational improvements to optimize system operation.

Several methods are available for addressing roadway capacity issues. Capital improvements, Traffic Systems Management, and Transportation Demand Management are briefly considered in this discussion in terms of their effectiveness in supporting the automobile mode in Sunnyvale.

Capital Improvement Effectiveness: A substantial capital improvement program is forecast as necessary to support the traffic generation anticipated for the year 2010.

Creating new roadway capacity in an urbanized area with a saturated traffic system is only marginally beneficial. In such environments, any new capacity created represents a diminishing percentage of the total existing capacity. Initially, the capacity improvement may seem effective, but the improvements to congestion are frequently short-lived. This is because driver behavior changes.

A classic example of behavior modification occurred with the opening of Highway 85 in western Santa Clara County. Drivers were unaccustomed to the new capacity, so congestion eased and cars moved faster in the short term. Over the ensuing year, however, both the new freeway and many of the old locations became congested again. Drivers adjusted their travel schedules in response to the decreased travel time that the new capacity provided. A new equilibrium was established that balanced travel time and congestion. The true benefit to the average driver was not decreased congestion, but rather a marginal reduction in travel time, and possibly a more direct route. It is not uncommon for roadway capacity improvements to be minimized over time since driver behavior changes and congestion reappear on a periodic and then regular basis.

In reality, capital improvements are a short-term fix for congestion unless they provide significant new capacity, which is virtually impossible in a developed city. The potential benefits of additional capacity are also reduced if development is allowed at greater intensities than what could have occurred prior to the improvement. Consequently, if long-term improvement is to be achieved, capacity improvements must be accompanied by controlling development intensities. Despite these drawbacks, capital improvements tend to be popular and do provide some quantifiable mitigation for increasing congestion.

Transportation Systems Management Effectiveness: Traffic signal operation refinements and travel and turn lane modifications are common TSM actions. Providing for more efficient, alternative forms of transportation is another TSM strategy.

The City can take actions that provide both passive and active choices for travelers. Modifying a traffic signal system is a passive action that improves the efficiency of the route for most travelers. Alternative transportation, on the other hand, requires a traveler to actively participate (e.g., shift travel modes) for the benefit to be realized. This participation requirement or behavior change has implications on the effectiveness of the various TSM actions and the approach taken to implement actions.

TSM policies and programs usually require City services similar to those required for standard capital projects. As stated previously, TSM capital projects typically have a smaller cost outlay. Ongoing maintenance costs vary by type of project, but on average are comparable. However, cost effectiveness is realized only if significant participation occurs, and benefits are often realized indirectly through reduced road maintenance costs, benefits to the local economy and tax base from improved traffic flow, and environmental benefits from pollution reduction. But because the City has already used most TSM strategies, significant additional improvement can only occur if the City employs drastic TSM measures such as prohibiting left turns at major intersections.

Transportation Demand Management Effectiveness: Examples of Travel Demand Management (TDM) actions are flextime, ridesharing, parking pricing, and telecommuting. Demand

management is a low cost approach for municipal government but can result in costs being shifted to other sectors. For example, an ordinance requiring businesses to provide car-pooling services shifts the cost of a travel improvement to the private sector.

Effective, broad-scale implementation of TDM can be challenging. Incentive programs such as ride matching services rely on travelers to participate. Their effect on improving travel times is marginal unless large numbers of travelers participate. Legislated actions such as mandated TDM programs are often unpopular. One strategy is to require developers to incorporate TDM measures into development projects. However, positive effects are realized only over long periods of time, and there are equity and economic development issues associated with implementing such regulations. Both TDM and TSM actions have been implemented widely despite these constraints.

Bicycle and Pedestrian Modes

Bicycle planning efforts to date have demonstrated that significant barriers exist to constructing a comprehensive bikeway network. Sunnyvale's road and bikeway network matured prior to 1981. The majority of the City's major roads were developed to standards that preclude bikeway facilities. The City also allows on-street parking on most streets. As a result, the City has a poorly developed bikeway infrastructure, and opportunities to expand the system are constrained. Compared to a roadway system composed of over 93 miles of arterial and collector streets, Sunnyvale has a total of 22.2 miles of bikeways. Bikeway planning has focused on making minor operational improvements and studying new bikeways as a part of major roadway widening projects.

Pedestrians face similar conditions. Sunnyvale's neighborhood street patterns do not lend themselves to journey-to-work or other nonrecreational walking. Segregated land uses and large building setbacks from the sidewalk add to this environment. Most industrial areas were developed without sidewalks, and large scale retrofitting would require a massive capital outlay. Currently, sidewalks are being installed piecemeal as new development and change of use occur.

Transit Modes

When communities look to their transportation future, there is almost always an interest in providing transit options. Public transit is viewed as a desirable situation for Sunnyvale's future, but it is not at all clear that public transit will be able to serve the projected future travel demand.

Sunnyvale and most of the South Bay is ill-suited for the effective use of public transit. The City's land uses are generally low to medium density with many uses dispersed geographically. The dispersion of jobs and housing makes it unlikely that the origins and destinations could be matched by transit routes with travel times competitive with the automobile. The vast majority of travelers in Sunnyvale use a personal vehicle. It is unlikely that these people could be attracted to transit unless transit was able to offer a significant advantage in terms of travel time or cost.

Several years ago, the City undertook a feasibility study of operating shuttle service between the major employment areas in north Sunnyvale and the downtown area. After extensive surveys and interviews, the study found that there was almost no demand for this type of service. Employees simply had a faster and more convenient alternative available in their private automobiles.

Additionally, any transit services considered for operation solely within Sunnyvale would be extremely disadvantaged by the fact that only a limited amount of travel in Sunnyvale begins and ends in Sunnyvale. As discussed in Chapter 2, 68% of Sunnyvale (85,000) residents travel to other cities for work, and over 80% of employees in Sunnyvale arrive from residences in other cities (Figure 3.6). For a transit alternative to be successful, it needs to be regional rather than intra-city.

Figure 3.6: Work Travel to and from Sunnyvale

	Total	In/Out Commuting
Sunnyvale Jobs	105,000	85,000 (81%)
Employed Sunnyvale Residents	80,000	54,400 (68%)
Total In/Out Commuting (commutes through Sunnyvale not included)		139,400

Source: U.S. Census, 1990

Even with its intercity system and service, the county transit system has limited success in serving the County's travel demand. Most workers and residents in Santa Clara County have automobiles that provide a more convenient travel alternative. The county transit system primarily serves the travel needs of "captive" riders (those without access to an automobile) and other segments of the traveling public unwilling or unable to drive for other reasons.

Consequently, the transit alternative is similar to the TDM alternative in that its likelihood for success, given current conditions, is grounded in government or employer actions to increase use of transit. Mandating travel behavior can be extremely unpopular. However, as previously discussed in Chapter 2, the VTA is working to increase the bus fleet and service hours by 2006, to begin operating the Tasman West LRT extension by 2000, and to implement a bus/rail integration plan for the transit system. This transit service expansion will greatly increase travel options and has the potential to increase use of transit far beyond current levels. Although typically viewed in a regional sense, transit service expansion can be highly successful in localized areas. For example, San Jose has experienced 15 - 20% transit commute use for higher density residential projects within walking distance of light rail. In addition, employers participating in the VTA's "Eco Pass" program have experienced significant increases in transit use by employees. Based upon a survey conducted in May 1997, the number of employees commuting on VTA transit vehicles increased 55% after receiving Eco Passes.

Outside Influences on City Transportation Policy

The City has the ability to execute strategies and achieve a limited degree of effectiveness within its own limits. Sunnyvale is one city among many in a large, urban area. Travel, land development, air quality, and a host of other concerns are shared with other jurisdictions. Several regional roadways bisect the City, bringing additional pass-through traffic. Urban growth and the transportation infrastructure in the rest of the region have a profound effect on travel and transportation policy in Sunnyvale.

The City's ability to implement change also has limitations. The last decade has seen significant new roles, responsibilities, and tactics at all levels of government to provide alternative transport.

The Santa Clara Valley Transportation Authority provides transit service. Ridesharing services and a carpool lane network have been planned and implemented by others. Air quality and congestion management legislation have placed the onus for regulation on the state and the Bay Area Air Quality Management District. Emerging technological alternatives such as telecommuting are largely being implemented by the private sector.

This regional environment has certain implications. Regional agencies are establishing procedures to foster consistent policy and prioritize funding to projects. The City participates in the Association of Bay Area Governments, the Metropolitan Transportation Commission, and the Santa Clara County Transportation Authority in order to exert some influence. Conversely, City policy needs to consider regional policies, and often conform to regional policies, in order to achieve goals in areas of regional concern and to acquire outside funding.

While there is considerable pressure to conform to regional goals and policies, the City could choose not to conform to outside policies and mandates. This would likely result in a loss of outside state and federal capital funding, with agencies' decisions negatively affecting travel to, from, and through Sunnyvale.

There are also economic pressures across jurisdictional boundaries. For example, transportation policy that creates imbalances between neighboring communities can affect economic development.

Neighborhood Traffic Engineering

Neighborhood integrity is a cornerstone of Sunnyvale's land use planning. Managing traffic in neighborhoods is an integral part of maintaining the livability of the community. Historically, the City has sought to provide adequate capacity on its arterial streets as the best means to reduce the diversion of trips to local residential streets. However, as the City matures and opportunities for enhancing arterial capacity diminish, the potential exists for more commute trips to be diverted to residential streets. Over time, this can contribute to the degradation of neighborhood units.

The primary tools for neighborhood traffic control are stop signs, yield signs, turn restrictions, and traffic enforcement. The City has also examined neighborhood "traffic-calming" methods and procedures. The goal of such techniques is to discourage through traffic. These types of actions can have unintended negative consequences. Impeding traffic flow with speed bumps or diverters increases energy use, exhaust emissions, noise, congestion, and dust, and decreases emergency response times. Traffic-calming actions are intended to modify travel patterns, which can have the undesirable effect of shifting traffic from one area to another.

City policy has traditionally called for minimizing impacts of the transportation system on adjacent land uses and then using an aggressive approach toward maintaining arterial and collector street traffic flows. This approach involves a commitment to a strategy that can both provide the necessary capacity and reduce travel demand. Transportation Systems Management strategies, such as restricting turn movements and manipulating the traffic signal system to maximize arterial street flows, are important tools. Continued use of stop and yield signs where appropriate and corresponding enforcement will also help keep commuter traffic out of neighborhoods. Promoting alternative transportation modes can augment these efforts as well.

Infrastructure Capacity

The City and regional transportation system is nearing, and in some areas has reached its capacity. If current trends continue, significant congestion during longer periods throughout the day will become more commonplace. How should forecasts of roadways exceeding their capacity be dealt with? Four general categories of options (plus combinations) are available to address capacity issues:

- ◆ Land Use Actions
- ◆ Physical Modifications
- ◆ Behavior Modification Techniques
- ◆ Lowering or Changing Standards
- ◆ Combination Approaches

Each option involves tradeoffs among the desired goals for the community. Figure 3.7 illustrates the connection between the options and the four long-standing goals of the community.

Figure 3.7: Transportation Infrastructure Capacity Options and Community Goals

		GOALS			
OPTIONS		Strong Economy	Appropriate Housing	Efficient Transportation	Community Character
	Land Use Actions	●	●	○	●
	Physical Modifications	●	○	●	●
	Behavior Modification	○	○	●	○
	Lowering or Changing Standards	●	○	●	●
● Strong Influence ○ Moderate Influence					

For each option there is a need to examine the effects on desired goals. For example, modifying land uses so that there are no impacts on the roadway system could mean that business opportunities are limited and the strong economy goal may not be met. Physical modification may not be popular when it involves acquiring private property, potentially affecting the community character and economic well-being of the City. Many behavior modification techniques are untested and the results are unpredictable. Policies to accept more congestion need to consider community character and efficient transportation.

Sunnyvale's General Plan correlates land use and transportation policies. The planned future transportation system should be sufficient to accommodate future traffic demand without compromising traffic level of service (LOS) standards. The City could lower its LOS standards. However such a change could adversely affect community character, the economy, and environmental health, while also raising regulatory, legal, and revenue issues for the City.

Land Use Actions

There are a variety of land use strategies that achieve a greater integration of land uses that shorten or reduce trips or make alternative transportation modes more convenient. Some of these strategies include zoning for mixed uses, site design oriented toward transit and alternative transportation access, and increased density at transit hubs with offsetting density decreases elsewhere.

Physical Modifications

Physical modifications can include re-striping the number of lanes, modifying or adding and subtracting traffic signals, or building new intersections and roads. Building new facilities in a mature suburban area produces room for more cars, but is the most costly and is incrementally less effective. Funding costly capital improvements is a tremendous challenge. Physical modifications fall into two categories, described below.

Transportation Systems Management (TSM): TSM typically involves less expense and is the first course of action. TSM projects optimize the capacities of existing facilities. TSM includes signal coordination and optimization, improvements for other transportation modes such as bikeways, bus duckouts and convenient transit service, minor road widenings, and left-turn restrictions. The City has used many of these strategies. Further TSM improvements are likely to be minimally effective.

Large-scale, City-wide Capital Improvements: The current Sunnyvale roadway system is adequate for the current level of development, but it cannot accommodate all future traffic should land develop to the forecasted build-out level. City policy has called for land development and the transportation system to be compatible.

The City's plans identify major roadway infrastructure improvements as mitigations to maintain LOS "D" and achieve compatibility between land use and transportation (see Appendix E for a map and list of City-adopted mitigation measures).

Additional traffic improvements recommended as mitigation measures for the City's recent major land use plans (e.g., Futures, Downtown Specific Plan) and the build-out of the Lockheed Martin Plant I are not included in the City's long-term capital improvements budget. If the City wishes to realize the plans it has made and improve its roadways as the means to mitigate traffic, additional projects will need to be programmed. Methods for financing and distributing costs (approximately \$100 million) for these traffic improvements will need to be developed, as they are not currently in the capital budget.

Behavior Modification Techniques

In transportation planning, behavior modification techniques attempt to change the choices that travelers make. Sunnyvale's 1981 Transportation Element included many policies supporting alternative transportation and transportation demand management. Sixteen years later, the City has had little effect on influencing the mode choice or travel characteristics of its residents and workers.

The City needs a strategy that can effectively address both capacity and resource constraints. Critical questions for the City are:

- ♦ Can alternative transportation modes play a major part in solving Sunnyvale's roadway capacity issues?
- ♦ Can Sunnyvale use its limited powers and resources to implement behavior modification techniques?

Market-based Strategies: Transportation "marketing" involves the creation of marketable transportation services (such as parking, peak hour travel time, or mode choice) and attaching prices to these services. Pricing structures are set to influence the desired travel behavior. Significant relief solely through this approach alone would require harsh City actions.

Market-based and regulatory approaches include incentives for positive change (e.g., high occupancy vehicle lanes) and/or disincentives for continuing with old patterns (e.g., charging for parking). Most success has been in flattening and extending the period of peak traffic congestion.

Market-based strategies within the City's capabilities include:

- ♦ In lieu provisions, which enable or require employers to substitute van-pooling and other commuting alternatives for on-site parking stalls.
- ♦ Parking "cash-out" requirements that require employers who provide parking space for employees to offer the employees a choice of cashing-out (on a monthly or annual basis) the market-value of the parking space. This approach is intended to promote carpooling, transit use, walking, and bicycling.
- ♦ Reduced parking requirements for businesses that institute and maintain flextimes, telecommuting, or other programs that have a demonstrated effect on peak-hour traffic.
- ♦ Permitting flextime and limited telecommuting, perhaps on an experimental basis, for City employees to serve as a model to other businesses.
- ♦ Permitting reduced minimum parking requirements for employers who provide bicycle lockers and showers.

Transportation Demand Management (TDM): TDM programs encompass those strategies that reduce travel demand (e.g., telecommuting, teleshopping, and flextime). TDM strategies include carpooling, increased use of public transit, telecommuting, and other strategies to reduce the number of trips made in single occupant vehicles.

Lowering or Changing Standards

Lowering Level of Service (LOS) Standards: Another option for addressing capacity would be to accept a lower LOS on City roadways. Rather than changing the amount of traffic a street can physically handle, this option changes the amount of congestion the community deems acceptable. LOS “D” is the policy per the 1981 Transportation Element for all roadways in Sunnyvale. However, the region’s Congestion Management Program (CMP) has established LOS “E” for roadways identified as part of the CMP countywide transportation system. Changes to acceptable LOS standards could change the character of the community over time.

It has been observed that lowering allowable levels of service will affect driver behavior. Some people will start to work earlier or leave later to avoid congestion, increasing the duration of traffic congestion. Drivers with a higher tolerance for congestion will continue to use the traditional peak time. These results could have a deleterious effect on a city’s ability to attract new business, as companies consider transportation infrastructure in their locational decisions. Figure 3.8 compares the number of deficient intersections for selected roadways for various LOS policies.

Figure 3.8: 2010 Projected Deficient Signalized Intersections for Various LOS Policies¹

Roadway (<i>total signalized intersections</i>)	Number of Deficient Intersections		
	LOS "D" (current policy)	LOS "E" CMP Regional Roadways, LOS "D" on all others	LOS "E" for all streets
Regional Roads			
Lawrence Expressway (10) ²	5	3	3
Mathilda Avenue (18)	3	2	2
El Camino Real (12)	3	0	0
Sunnyvale-Saratoga Rd. (6) ³	2	0	0
Non-Regional Roads			
Wolfe Road (12)	4	3 ⁴	0
Mary Avenue (16)	1	0 ⁴	0

¹ Based on 1992 data

² Includes Homestead Rd. intersection, which is 1/4 in Sunnyvale

³ Includes Homestead Rd. intersection, which is in Cupertino

⁴ Assumes that policy for regional road (El Camino Real) intersection takes precedence. El Camino Real intersection would be at LOS "E".

Alternative Measurements: Level of service is a traditional measure used for defining transportation problems, specifically roadway congestion. However, other measures can be used. Measures like mode split, vehicle miles of travel per person trip, person throughput, air quality, and transit frequency and accessibility would include the impact on, and the effectiveness of, non-automobile modes when new development occurs. Use of such measures in capital improvement planning and land use decision making could have a significant impact on the types of transportation solutions that the City relies on to support its land use plan.

Data gathering and analysis for alternative measures can be cumbersome. Extensive baseline data gathering and modeling is required. Assumptions made in a modeling

process can have a profound effect on the results of measurements. Project-specific data gathering may also be difficult and time consuming and would increase the cost of development. Also transit, demand management regulations, and other alternative transportation solutions that multi-modal performance measures would rate may not be within the City's purview or financial capability to implement.

Performance-based Standards: Another potential policy change would involve the adoption of performance-based standards. Traditionally, floor area ratio (FAR), lot coverage, and units per acre have determined the intensity of development. When a proposal triggers an environmental review, such as a traffic study, LOS and other standards are also considered. In cases where LOS would be significantly impacted, mitigation measures such as capital improvements might be required. In such cases, the need to finance capital improvements can halt a project.

It may be possible to consider the number of peak hour trips, in addition to other zoning standards, to determine maximum project intensity, both with and without the need for capital improvements. Rather than limiting the amount of building area on the campus, a use permit or other zoning tool could be approved with a cap on the total number of peak period trips. If there is a limit imposed on the number of additional vehicle trips generated by the development, mitigation measures might not be needed. Annual monitoring of traffic levels would be needed to stay abreast of traffic conditions and to indicate to the applicant how much remaining capacity is available. This method could be especially effective for phased development proposals, such as large industrial campuses that plan for growth over 10- to 20-year periods. This method was adopted for Lockheed Martin Plant I.

Capacity-resolving methods could be explored and implemented through ongoing review of a phased development plan. For example, it would be in the best interest of business to implement its own TDM measures in order to maximize its use of the site. This approach places the obligation on the generator of the trips and not the City.

This approach would be difficult to administer on a site-by-site basis for smaller developments. To be effective for smaller developments in built-out areas, each site may need to be considered as part of a group that is monitored as a whole. Determination of the proportion of any one site's contribution to peak hour trips for the group would make monitoring more complex.

Combining Capacity Improvements with Transportation Systems Management (TSM) and Transportation Demand Management (TDM)

This alternative would be a cafeteria-style approach to address current and future transportation constraints. It would be comprehensive and flexible in order to address changing transportation constraints and economic development strategies. The City would monitor traffic conditions and schedule capital improvements as conditions and funding options warranted. In addition, it would study and develop TSM, TDM, and market-based approaches to increase overall transportation system efficiency and reduce travel demand.

Without a comprehensive transportation system mitigation plan, the City will address land use changes on a case-by-case basis. Over the next 10 to 15 years, the City may experience significant traffic and land use conflicts that are damaging to the orderly physical development, social environment, and economic vitality of the community.

Funding

Exclusive General Fund/Gas Tax Fund

In the current 20-year budget forecast, the City is essentially breaking even. The three primary capital funds (the General Fund, the Gas Tax Fund, and the Infrastructure Fund) have committed funds in the 20-year Resource Allocation Plan for a total of about \$100 million in expenditures with matched revenues. The City can assume that the cost of new transportation-related capital projects would nearly double the total projected cost for all capital improvements to \$200 million over the next 20 years (see Appendix E for approximate cost of transportation mitigations.)

Assessments/Taxes/Fees

The General Plan Fiscal Sub-Element identifies various methods for funding infrastructure improvements including targeting services or programs for tax or fee increases, seeking other sources of revenue, and increasing revenues from specific sources (e.g., business license tax, transient occupancy tax, and utility users tax). Combining General Fund and Gas Tax Funds and outside sources of public funding (federal and state programs) with new assessments, fees, or taxes for transportation improvements could provide for a program of capital improvements to mitigate planned development and projected traffic growth. These options may not be popular, but would provide a mechanism for full or partial funding of transportation projects.

Various Fee, Assessment, and Taxation Methods

Transportation Impact Fees: These fees are single payments imposed on developers at the time of development approval. The provision of capacity to serve the new development, rather than to overcome a backlog of existing deficiencies, establishes the fee. Fees are calculated to be the proportionate share of the capital cost of providing major facilities for that development. This type of fee will typically pay for only a part of a needed capital project. Impact fees typically do not generate significant revenues in mature communities, such as Sunnyvale; they also have a potential

negative perception and adverse impact on economic development efforts. However, it is useful in lowering the City's costs, particularly if other projects are anticipated that can also contribute to the project.

Benefit/Assessment Districts: These districts are geographically defined areas where annual fees on property reflect special benefits the property receives from local improvement. If there are City-owned properties within the benefit area, the City participates in the benefit assessment.

As in the case of transportation impact fees, the fee mechanism for benefit/assessment districts must account for only the district's contribution to the deficiency. There would likely be a need for City funds to augment revenue from such a new fee in order to provide full funding for the needed improvements. Also, there is a time lag in accumulating the total cost of the improvement. Proposition 218 requires that benefit assessments are subject to a vote by those who would be assessed. The assessment must be in proportion to the value of the special benefit received by the parcel.

Local Taxes: Local taxes are voter approved tax or debt to fund needed (transportation) capital improvements. These taxes are levied either to fund special or general purposes in the community. General taxes benefit the broader community and the proceeds go to the General Fund. Special taxes pay for a particular purpose and must be maintained in a separate fund. Currently, specific taxes must be approved by two-thirds of the voters in order to be enacted. Achieving this proportion has been difficult. Several jurisdictions in California have posed advisory measures to the electorate about how funds should be spent at the same time that the authorization for expenditure was placed on the ballot. A 1996 example in Santa Clara County is Measure A/B, which appropriated an incremental sales tax for transportation improvements in the County.

Regional or Area-Wide Gas Taxes: Regional or area-wide gas taxes prompt market-based decisions about commute trips including trip lengths and the locations of origins and destinations. Such taxes discourage drivers from choosing long commutes. A gas tax is probably the most effective funding tool available; however, it could also be politically challenging to implement.

Bonds: Bonds are debt financing vehicles issued by governments at the discretion of the electorate to provide funds for improvements and allow government agencies to pay off the cost plus interest over time. There are a number of types of borrowing instruments, such as general obligation bonds, lease revenue bonds, or Mello Roos bonds. Bonds themselves do not increase revenues, but rather provide capital funds in return for eventual repayment, including significant borrowing costs. The sources of repayment for debt financing vary with the type of financing, and may include funds from leases, assessments, etc. In general, an increase in revenues to support debt requires a two-thirds voter approval.

Voluntary Proffers: Voluntary proffers are negotiated payments by developers to government to pay for all or a portion of infrastructure improvements in support of the development.

This approach uses project-specific conditions of approval as a mechanism to secure funding. This approach is common for linking project approvals to needed traffic mitigation, but the burden on development may increase substantially as traffic service levels deteriorate over time.

Outside Funding: The City monitors funding opportunities for a wide variety of transportation infrastructure improvements. Sunnyvale has successfully competed for funds in the past; however, the region suffers from a short supply of capital funds for transportation.

Local capital projects are typically prioritized lower than regional projects. For example, the Congestion Management Program (CMP) process has scored transportation projects with a regional or sub-regional benefit higher than projects serving a local community.

In Santa Clara County, a County-wide Deficiency Plan (oriented almost exclusively toward freeways and

expressways) currently under development may incorporate funding and implementation plans that mandate financial contributions of both the public and private sectors. This funding would be applied to the transportation projects throughout the region that best mitigate existing or projected regional congestion. It is difficult to ascertain what direct impact these plans may have on funding alternatives for needed improvements to Sunnyvale's transportation infrastructure.

Conclusion

Within Sunnyvale a primary focus is the integrity of all types of neighborhoods: residential, commercial, and industrial. The gradual intrusion of nontraditional issues in industrial areas remains a challenge. The need for support and social services should be balanced with the needs of business and industry. The development of commercial areas adjacent to residential neighborhoods poses issues of noise, traffic, and building design congruity with the existing neighborhood. In much the same way, the introduction of new housing needs to achieve a balance between its design with the surrounding community while responding to market demand.

In industrial areas of the City, renewed interest in increasing the FARs on various sites during both development and redevelopment of selected properties has also become more evident. While this directly supports jobs and economic development goals, it results in additional traffic on both local and regional transportation arteries. Land use decisions directly impact transportation in and through the community, as residents and businesses alike use various transportation modes: automobile, bicycle, pedestrian, and transit.

Historically, capital improvements to transportation corridors has been the primary emphasis. Capital improvements, however, remain very costly, and communities face reduced opportunities for regional, state, and federal funding. Local options such as assessment districts, taxes, and fees are alternative sources to consider. Other modes, transportation system management, and transportation demand management techniques are also being introduced. Another approach is to examine modifications to the development standards, including the FARs in industrial areas, as a means to moderate the impact of traffic related to job growth. A major challenge for Sunnyvale will remain the impact of commuter traffic to and through the City with the expansion of the job base.

In summary, land use and transportation choices have an affect on virtually all other elements of the General Plan. Decisions on the use of land determine the character of the community, its economic vitality, and the future demand for services. The City has expressed its goals for the future with emphasis in four broad areas:

- ◆ Community Character (expressed in terms of appearance and balance)
- ◆ Appropriate Housing
- ◆ Efficient Transportation
- ◆ Strong Economy

The goals of appropriate housing, a strong economy, and transportation efficiency contribute to and create a sense of community character. Since Sunnyvale is part of the region, these factors are further influenced by changes in population, jobs, and transportation that take place in both the region and the City. These relationships form the basis for the Land Use and Transportation Element.

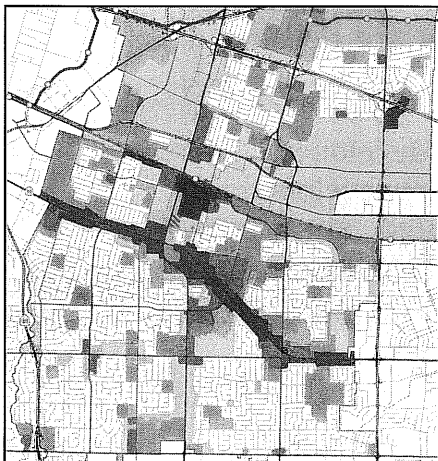
The concluding chapters of the Land Use and Transportation Element include Facts and Assumptions and Community Condition Indicators (Chapter 4) and Goals, Policies, and Action Statements (Chapter 5).

CHAPTER 4 - MAJOR FACTS, FINDINGS and ASSUMPTIONS, and COMMUNITY CONDITIONS INDICATORS

Chapter 4 consists of three sections: major facts, findings and assumptions, and community conditions indicators. The facts, findings and assumptions form the basis for the goals, policies, and action statements of Chapter 5, and are derived from the community conditions, trends, and issues discussed earlier in Chapters 1, 2, and 3. The community conditions indicators are measures that the City uses to track changing conditions and may implicate the need or effectiveness of City policy.

MAJOR FACTS

The following facts form the basis of many of the goals and policies of the Land Use and Transportation Element.



1. In 1995, Sunnyvale's population was approximately 126,800; ranking it the twenty-ninth largest city in the state, the fifth largest in the Bay Area, and the second largest in Santa Clara County. The City is 24 square miles. The average number of persons per household in 1995 was 2.50.

2. The community has become increasingly diverse over the past twenty years. In 1990, white non-Hispanics made up 65% of the population, Asians and Pacific Islanders were 19%, Hispanics were 13%, and African Americans were 3% of the population.
3. In 1995, the mean household income in Sunnyvale was \$66,300, which was 11% less than the mean household income in Santa Clara County.
4. In 1995, there were 107,570 jobs, however, more current estimates suggest a significant increase to about 120,000 in 1997. The City has 78 employers with 100-500 employees and 14 employers with more than 500 employees. It has the fourth largest number of jobs of any city within the nine-county Bay Area. The highest percentage of these jobs are devoted to manufacturing and wholesale (58%) and the service sector (22%).
5. In 1995, there were approximately 10,300 businesses licensed to operate in Sunnyvale. The number of business licenses issued yearly increased steadily in the early 1990s. In 1995, about 4% of the City's business licenses were issued for home businesses.
6. Over 40% of the land in Sunnyvale is in residential use: 25% is in single-family dwelling units; 11.4% is in multi-family homes; and 3.5% is in mobile homes. Of the total residences in Sunnyvale, 49% are owner occupied, and 51% are rentals.
7. Sunnyvale is the geographical center for the high-tech industry in Silicon Valley.
8. Almost 93% of the industrial parcels in the City have been developed. Floor-area-ratios (FAR's) range from 16% to 143%. And 58% of the parcels in the industrial areas are developed with less than a 35% FAR.
9. Overall, 96% of the parcels in the City are developed. The remaining opportunities include infill development, redevelopment of under-utilized or deteriorated sites, and intensification of existing land use in designated areas.

10. Vacant parcels represent approximately 265 acres. There are 45 acres (17%) designated for residential use, 206 acres (78%) for industrial use (including 124 acres owned by Lockheed/Martin), 11 acres (4.1%) for commercial use, and less than 1% designated for public and quasi public uses.
11. Sunnyvale has taken actions to ensure that development is within existing service capacity, while encouraging a variety and balance of land uses.
12. The automobile is the dominant mode of transportation. There are 298 miles of streets within the City, but the majority of traffic is carried on a few freeway, expressway, and arterial segments totaling 50 miles.
13. About 70% of Sunnyvale's peak hour traffic is made by nonresidents entering, leaving, or passing through Sunnyvale, rather than by Sunnyvale residents. Drive-alone trips by workers commuting to Sunnyvale have been increasing (78% of all trips in 1990). A high portion of total peak hour traffic is in a single direction, accessing a number of employment sites in the northern part of the City.
14. Sunnyvale has a total of 163 signalized intersections. The City operates 117 of those traffic signals and, of these, 59 are interconnected. The remaining signals are operated by the State or County.
15. The Santa Clara Valley Transportation Authority provides 26 bus routes in Sunnyvale. Bus service and ridership is affected by outside funding levels, cost-effectiveness, and the local economy. Virtually all Sunnyvale residents currently have access to transit within $\frac{1}{4}$ mile of their homes. Transit's share of the modal split in Sunnyvale has declined slightly over the last seventeen years. Overall ridership rates have cycled with the local economic climate and with improvements in transit service, particularly Cal Train service. Transit trips make up 2.5% to 3% of resident and worker commute trips.
16. Bicycle and pedestrian travel make up a small portion of trip-making in Sunnyvale. Approximately 1% of Sunnyvale residents commuted by bicycle in 1990, while about 1.5% walked. The statistics are very similar for Sunnyvale workers.
17. There are bicycle lanes on 15 miles of streets, 2.6 miles of separated bicycle path, and 4.6 miles of signed bicycle routes.

FINDINGS AND ASSUMPTIONS

The Goals, Policies, and Action Statements within the Land Use and Transportation Element are based on the following assumptions:

1. Land use and transportation issues are closely linked and fundamental to the physical development of the City.
2. The City wants to create and enhance an attractive community with a positive identity that supports a high quality of life.
3. Sunnyvale desires to remain an industrial center and a strong suburban, residential community. The City desires to preserve and improve the quality of its residential, commercial, and industrial neighborhoods.
4. There will be increases in regional population and employment that will affect transportation facilities and land uses in Sunnyvale.
5. Sunnyvale's projected population growth is similar to the projected growth rates for Santa Clara County. The 2010 population estimate is for 142,900 residents. The number of persons per household is expected to increase modestly to 2.55 in the year 2000 and then gradually decline to 2.50 by 2010.
6. The Sunnyvale community will become more ethnically diverse over the next decades.
7. The number of seniors is expected to increase dramatically; the number of adults will remain relatively constant; and the number of children will increase by a moderate amount.